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NARROW UPRIGHT TREES IN THE ARNOLD ARBORETUM

THE Lombardy poplar has earned a bad name for itself among plantsmen in general, and in many localities ordinances have been passed restricting its use. However, because it is a rapid grower and is available from almost every nursery, it will continue to be used in certain locations. What are some of the possible substitutes for it? It is extremely interesting to note that there are at least 43 different species and varieties of trees actually growing in the Arnold Arboretum now which might be used in its place, and these do not exhaust the list of possibilities by any means. There are many others which, if noted, would make this list surprisingly long.

It is an easy task to make note of unusual trees growing at various places over a wide area, but with specimen trees in one particular place and others several miles distant, it is rather difficult to make direct comparisons. For the purposes of this Bulletin it has been considered advisable to publish the list of those species and varieties with narrow erect crowns actually growing in the Arboretum, for this list alone is sufficiently large to be impressive. The Arboretum will be glad to know of other forms and will appreciate receiving information and photographs of other unusual varieties representing these unusual growth forms so that a fairly comprehensive list with accurate notations can be assembled.

Unfortunately, there is not a sufficient demand on the part of the public to make it profitable for nurserymen to grow these plants in large numbers; that is why some are almost unobtainable in the trade. All the trees in the list are not of outstanding value. Some are far superior to others, as for instance the upright form of the European

beech which is a distinctly more valued ornamental than is the upright form of the American linden.

There are interesting stories connected with the origin of many of these special forms. The beech came from the Scottish estate of F. R. S. Balfour; the Norway maple originated in Rochester, New York, and is now being propagated there for use as a street tree. The sentry maple (*Acer saccharum monumentale*) came from a Boston suburb over fifty years ago. The others originated in widely separated parts of this country and Europe.

Each plant has its own peculiarity. *Acer saccharum monumentale* is a very narrow and upright tree, while *A. rubrum columnare* has a considerably wider crown, although it can be classed as upright. Then, too, these trees vary in their growth rate. The sugar maples are slow in growth, the red maple a little faster, and the poplars, of course, are the fastest. Some, like the hornbeams make splendid lawn specimens, but the maples soon outgrow their usefulness unless the lawn is very large. Because of their clearly defined shape, all might be considered as possibilities for use in formal plantings.

Unfortunately, the nomenclature is somewhat confused, and as a result we have received duplicate plants under several different names, time and time again. The following plants now growing in the Arboretum are listed according to their accepted scientific names:

Narrow upright trees in the Arnold Arboretum

Abies alba pyramidalis (*A. pectinata pyramidalis*)

Acer platanoides columnare

Acer platanoides erectum

Acer rubrum columnare

Acer saccharinum pyramidale

Acer saccharum monumentale (*A. saccharum columnare*, *A. saccharum pyramidale*)

Aesculus Hippocastanum pyramidalis

Betula pendula fastigiata (*Betula alba fastigiata*)

Carpinus Betulus fastigiata (*Carpinus Betulus pyramidalis*)

Crataegus monogyna stricta (*C. oxyacantha stricta*)

Crataegus Phaenopyrum fastigiata

Fagus sylvatica fastigiata (*F. sylvatica Dawyckii*)

Ginkgo biloba fastigiata

Juniperus chinensis mas

Juniperus communis hibernica

Juniperus communis suecica



PLATE XII

Acer saccharum monumentale, sentry maple

Juniperus virginiana fastigiata
 Juniperus virginiana pyramidalis
 Liriodendron Tulipifera pyramidale (*L. Tulipifera fastigiatum*)
 Morus alba pyramidalis (*M. alba fastigiata*)
 Picea Engelmanni fastigiata
 Pinus cembra
 Pinus Strobus fastigiata
 Pinus sylvestris fastigiata
 Populus alba pyramidalis (*P. alba Bolleana*)
 Populus nigra italica
 Populus nigra plantierensis
 Populus nigra thevestina
 Populus Simonii fastigiata
 Quercus robur fastigiata
 Robinia Pseudoacacia erecta
 Taxus media Hicksii (*T. cuspidata Hicksii*)
 Thuja occidentalis Douglasii pyramidalis
 Tilia americana columnaris (*T. glabra columnaris*)
 Tilia platyphyllos fastigiata (*T. platyphyllos pyramidalis*)
 Ulmus americana ascendens
 Ulmus americana columnaris
 Ulmus americana "Moline Elm"
 Ulmus carpinifolia cornubiensis (*U. foliacea stricta*)
 Ulmus carpinifolia Dampieri (*U. foliacea Dampieri*)
 Ulmus carpinifolia sarinensis (*U. foliacea Wheatleyi*)
 Ulmus glabra exoniensis (*U. montana fastigiata*)
 Ulmus hollandica "Klemmer"

DONALD WYMAN

Large seed collection imported by Arboretum during summer

In February 1937, the Arnold Arboretum made a small grant to the Fan Memorial Institute of Biology, Peiping, China, to help finance a horticultural-botanical expedition to Yunnan Province. This expedition was in part supported by a grant from the Royal Botanic Garden, Edinburgh. The fieldwork was done by Mr. Te-Tsun Yü, the results, as to quantity and quality of the material secured, being surprisingly good. The Arnold Arboretum's share of the seeds collected approximate 2000 numbers. The Royal Botanic Garden, Edinburgh, received a similar shipment, as the seeds secured under each number were divided between the two institutions. Sir William Wright Smith, Director of the Edinburgh institution, states that he doubts whether



PLATE XIII
Acer rubrum columnare

any similar collections so ample in quantity and of such fine quality have ever been secured before in China by any single expedition.

As far as the Arnold Arboretum is concerned, it is fully realized that none of the species represented in this enormous Yunnan collection will withstand the rigors of the Boston climate. The institution, however, has from the beginning of its career sponsored the introduction of exotic species into the United States, and has given its introduction wide distribution.

In accordance with this principle, this great Yunnan seed collection has been divided into sets, approximating 12,000 seed packets. These have been distributed to strategically located institutions in the United States, Great Britain, Belgium, France, Germany and Italy; institutions so situated that it is hoped that these Yunnan species, once established within their grounds, may thrive. Excess stock in very considerable quantities has been turned over to the Seed and Plant Introduction Division of the United States Department of Agriculture, and herbaceous material to the Massachusetts Horticultural Society, for distribution to its membership.

The nine large parcel post packages containing these seeds were forwarded to the Arnold Arboretum in three separate shipments from Yunnan-sen. A set of corresponding botanical specimens has also been received.

This is an excellent example of cooperative fieldwork that has recently been developed at the Arnold Arboretum, whereby from unrestricted special funds received from its friends and supporters small grants are made to strategically located institutions and individuals to cover the actual cost of field work. Thus for less than it would have cost the Arnold Arboretum to send a staff member half way around the world, provide for his salary, travel and field expenses, it has been possible to finance, in the past two years, through these small grants, about twenty-five parties for work in China, Japan, India, Burma, the Malay Peninsula, Java, the Philippines, New Guinea, Colombia, British Columbia, Brazil, Mexico, Argentina, North Carolina, Louisiana, Washington, and Oregon. In some countries grants have been made to several different institutions. The amount of material now being received will tax the efforts of the limited staff of the Arnold Arboretum to the utmost, to give it proper attention, to complete the necessary identifications, and to publish the results. The essential reference collections of the Arnold Arboretum are being rapidly increased with a great quantity of most desirable material, and at a remarkably low cost.

Notes

Professor Alfred Rehder celebrated his 75th birthday on September 4, 1938. In appreciation of his conspicuous services over a period of 40 years to the Arnold Arboretum, to horticulture, dendrology, systematic botany and botanical bibliography, the staff tendered a dinner to him and to Mrs. Rehder on the evening of September first. This was attended by thirty-one individuals. During the course of the dinner, Professor Rehder was presented with a substantial purse provided by members of the committee appointed by the Corporation of Harvard University to visit the Arnold Arboretum, and his associates. It is worthy of note that Professor Rehder's original appointment on the staff of the Arboretum in 1898 was at the rate of \$1.00 per day as what was then called a "working student", and his first task was to eliminate the weeds in the then newly established shrub collection by the vigorous use of a hoe. One unique feature of the dinner was the table decorations which were all sprays of plants actually named and described by Professor Rehder.

At the opening ceremony of the fifteenth International Geographical Congress, Amsterdam, July 18, 1938, Dr. E. D. Merrill, Director of the Arnold Arboretum, was elected an honorary member of the Royal Dutch Geographical Society for his investigations in plant geography. The other American scientist so honored was Dr. C. O. Sauer, Professor of Geography, University of California.

**Preliminary report on the storm damage to the Arboretum on
September twenty-first**

In the late afternoon and early evening of September twenty-first, the Boston area experienced its worst wind storm since weather records have been maintained. This was a West Indian hurricane that proceeded northward along the New England coast. The rainfall was relatively slight in Boston, but the wind velocities at times reached approximately (87 miles actually reported) 90 miles per hour. The undersigned spent twenty-two years in the Philippines, a region noted for its numerous destructive typhoons, yet in this entire period he actually experienced higher wind velocities only two or three times. Naturally tremendous property damage resulted, and literally hundreds of thousands of trees were uprooted or so badly damaged that they will have to be removed and replaced. The Arboretum suffered severely.

The storm was intense at 5:00 p.m. and gradually increased in violence. The worst damage was done in the Arboretum between about 5:30 p.m. and 6:30 p.m. A tour of the grounds at 5:30 p.m. revealed relatively slight damage; for example there were only three or four trees in the extensive pine grove back of the Administration Building that were down or showed signs of weakening at that time; an hour later nearly all the trees in the entire planting were prostrate. The sound of rustling leaves, breaking branches, and creaking trunks was at times almost deafening. The worst of the storm was over by 8:00 p.m.

A hurried survey made early the next morning shows that approximately 1500 trees were either uprooted, broken off, or their tops so badly damaged that they will have to be removed. Many others were injured, but can be saved by judicious pruning. The losses include some of the oldest and largest trees in the Arboretum, as well as some of the rarest ones. Some of the roads were impassable, and all paths and roads were strewn with debris, broken branches, and fallen trunks. Damage was particularly serious in certain exposed areas, notably on the slopes back of the Administration Building, on the southeast or exposed side of hemlock hill, where scores of century old native hemlocks fell, in the southern part of the pinetum, where many of the largest pines, firs, and spruces are prostrate, and along the southeast side of the Peters hill area, particularly in the collections of poplars and oaks.

This is the greatest single catastrophe that has happened to the plantings in the Arboretum since its establishment in 1872. It will take many years to repair the damage, for in many cases old mature trees must be replaced by young ones. It is planned to publish a more comprehensive report on the storm damage at a later date.

E. D. MERRILL